Six-Year Compliance with a Treatment Regimen and Resultant Control of Blood Pressure In Special Veterans Administration Hypertension Clinics

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The Veterans Administration (VA) established a hypertension screening and treatment programme (HSTP) using registered nurses and physician assistants to provide primary antihypertensive care under physician supervision in special clinics. Significant patient intake began in 1974. Six clinics that were able to follow their initial cohort of patients for at least 6 years form the basis of this report on long-term compliance and control. Of 617 male veterans with hypertension who were enrolled in 1974 and early 1975, 385 (62.4%) continued to be followed in the VA HSTP for a full 6 years, at the end of which 85% had adequate antihypertensive control (diastolic pressure < 95 mmHg).

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Introduction

The VA initiated a special HSTP following the 1970 VA co-operative study report demonstrating reduced morbidity and mortality with treatment of moderate hypertension [1]. The programme was designed to provide effective but inexpensive blood pressure control for veterans with previously untreated asymptomatic hypertension. An advisory group developed a precise and detailed treatment algorithm for primary antihypertensive care to be administered by registered nurses and/or physician assistants working under the supervision of a physician. In 1972, HSTP clinics were established in 16 VA medical centres and the number of clinics had increased to 32 by 1975. Significant clinic enrolment began in 1974. When the early central computerization of the programme was discontinued in 1977, six clinics continued comparable data collection locally, and their data on a 6-year follow-up are presented here.

Methods

The staffing originally allotted to each clinic consisted of a supervisory physician, two therapists who had been specially trained in hypertension and a clerk-receptionist. Clinic algorithms called for trained therapists to measure the blood pressure of the seated patient three times at each visit in the standard manner with diastolic pressure equated to the fifth Korotkoff sound. The algorithm called for starting treatment with a diuretic, adding an adrenergic blocking agent and finally a vasodilator if needed. Primary care was provided by the registered nurse or physician assistant, with the physician constantly available for consultation. In addition, physician consultation was required at annual visits and under four other sets of circumstances: (1) when the initial decision to treat was made; (2) when the maximum drug dosage listed in the protocol was reached without achieving satisfactory control; (3) when significant drug toxicity occurred; and (4) when significant hypertensive complications occurred. The three-step regimen was expected to provide satisfactory control for 95% of subjects with moderate hypertension and for 80% of those with severe hypertension [2]. 'Compliance' was measured by attendance at clinic and 'control' was defined as a diastolic blood pressure < 95 mmHg.

A total of 617 male veterans with diastolic pressure above 90 mmHg began treatment in six VA HSTP clinics between 1 January 1974 and 31 March 1975. Of these patients 45% had mild hypertension (diastolic pressure 90–104 mmHg), 32% had moderate hypertension (diastolic pressure 105–114 mmHg), and 23% had severe hypertension (diastolic pressure ≥ 115 mmHg). Of this population 62% were black, and their distribuiton between mild, moderate and severe hypertension was very similar to that of the entire population. Of the study population 7% were less than 35 years old, 36% were

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Table 1. Blood pressure in 385 patients after 6 years of treatment.

	Diastolic pressure < 90 mmHg	Diastolic pressure < 95 mmHg	Systolic pressure < 150 mmHg
	No. (%)	No. (%)	No. (%)
At last visit	253 (65.7)	328 (85.2)	285 (74.0)
Mean of last 2 visits	263 (68.3)	328 (85.2)	293 (76.1)
Lowest of last 2 visits	308 (80.0)	351 (91.2)	325 (84.4)
Highest of last 2 visits	194 (50.4)	291 (75.6)	230 (59.7)

The number and percentage of patients with treated blood pressures below the indicated levels are cited, using different criteria for 'control'.

35–49 years old, 49% were 50–64 years old and 8% were more than 65 years old.

Results

A total of 617 patients began treatment between January 1974 and March 1975, in HSTP clinics in Birmingham, AL, Dallas, TX, Memphis, TN, St Louis, MO, San Juan, PR, and Washington DC. In the first year 45 patients (7.3%) dropped out of clinic care; dropouts in the next 5 years were 38, 32, 41, 39 and 37. Of the original 617 patients, 385 (62.4%) were still being followed a full 6 years after they began treatment in the HSTP clinic. The follow-up for these six individual clinics at 6 years ranged from 34.0 to 94.2%.

Of the 385 patients who remained in HSTP care for 6 years, 65.7% had a diastolic pressure below 90 mmHg and 85.2% had a diastolic pressure below 95 mmHg on the last visit of their sixth year. The percentage of patients controlled was very similar if the average pressure at the last two visits was substituted for the pressure at the last visit (Table 1). If the lowest pressure from the last two visits was substituted, 80.0 and 91.2% of patients were controlled below 90 and 95 mmHg, respectively. If the highest pressure from the last two visits was used, the comparable percentages were 50.4 and 75.6. Seventy-four per cent of the patients had a systolic pressure below 150 mmHg at the last visit (Table 1).

Of the 328 patients who were followed and controlled for 6 years (i.e. whose last diastolic pressure in the sixth year was below 95 mmHg), 12% were taking no drugs at their last vist of the sixth year, 35% were taking diuretic alone, 30% were taking a diuretic plus an adrenergic blocking agent, 10% were taking that combination plus a vasodilator and 13% were on some other regimen.

Considering the last visit for the entire 617 patients, whether or not they were followed for 6 years and whether or not their blood pressures were controlled, 15% were not taking any antihypertensive drugs, 33% were taking a diuretic alone, 29% were taking a diuretic and an adrenergic blocking agent and 10% were taking that combination plus a vasodilator.

Conclusion

Excellent long-term clinic attendance and associated excellent control of blood pressure was obtained by VA special HSTP clinics in which registered nurses and/or physician assistants treated hypertension using a uniform and precise algorithm under the supervision of a physician. These results seem to demonstrate the value of specially trained therapists who take responsibility for individual patients and who are continually available to them for consultation and support.

References

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